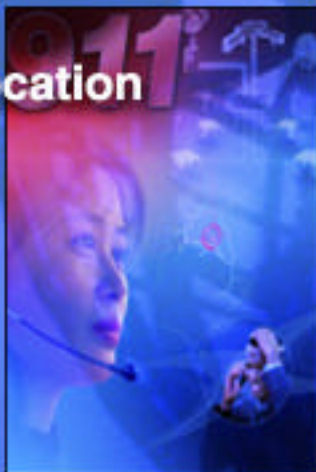


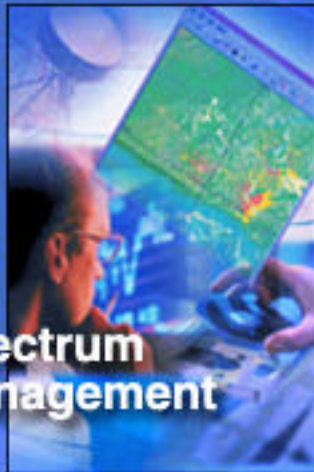


Network Solutions Division

Geolocation



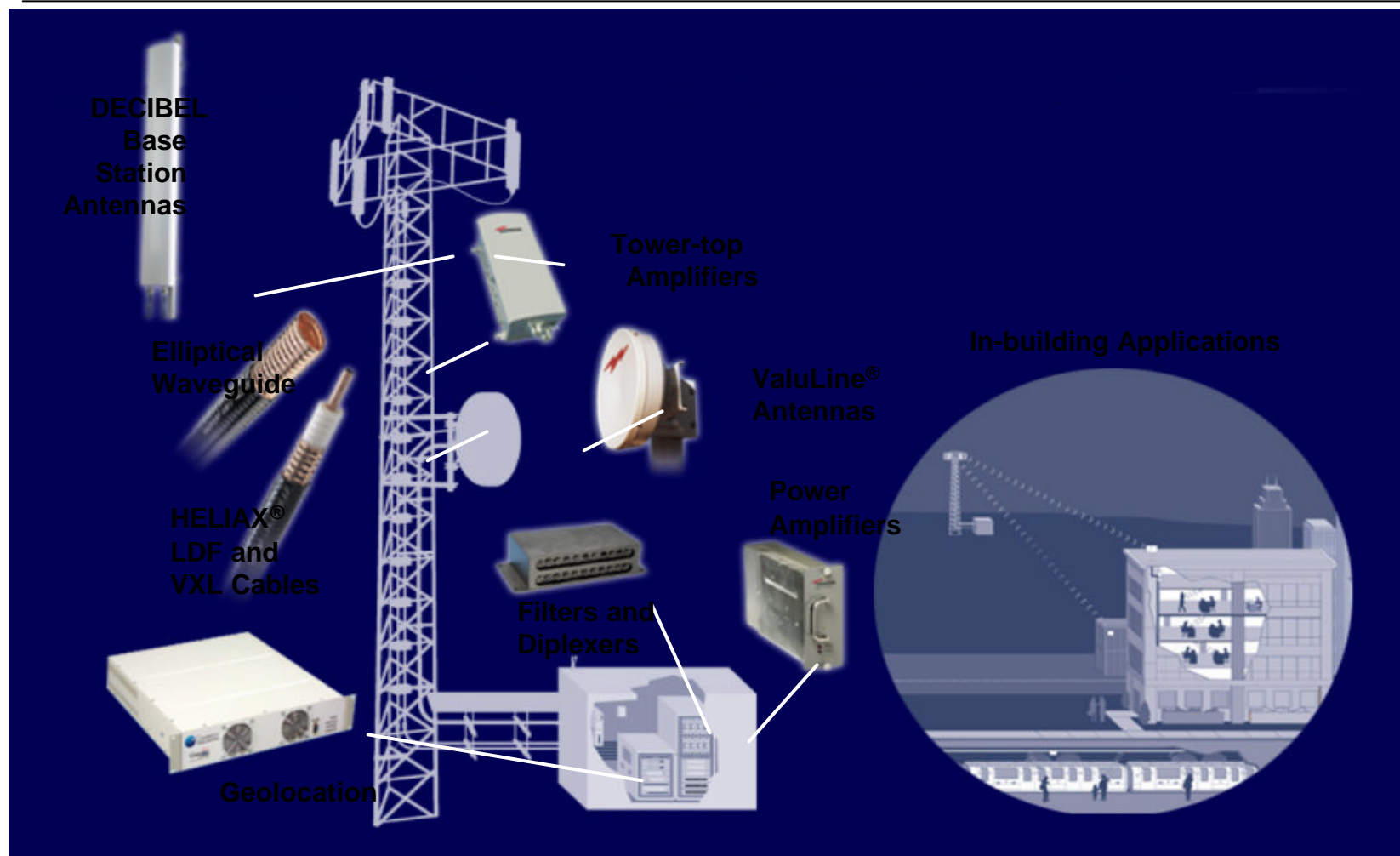
**Spectrum
Management**



**Network
Optimization**



Andrew Corporation Product Lines



Quick Facts: Andrew Wireless Caller Location System

- **Product Name: Geometrix®**
- **Type: Network-Based (overlay) Caller Location System**
- **Technology: Time Difference of Arrival (TDOA)**
- **Compatibility: All Cellular and PCS Networks and Handsets (Digital *and Analog*)**
- **First Commercial Service: October, 2001**
- **Current In-Service: >10,000 Cell Site Locations**
- **Estimated Users Covered: < 11 Million**
- **In-Service Environments: Urban, Rural, Suburban**
- **Carrier Customers: Tiers I, II, and III**
- **Performance: E911 Phase II-Compliant**
- **Deployed In: 35 States**

Geometrix® Deployment Experience

- The Only E911 Phase II Deployed in all Carrier Tiers
- Tier I: Multiple Carrier Customers. Large Urban, Urban, Suburban, and Rural Deployments.
- Tier II: Multiple Carrier Customers. Urban, Suburban, Rural Deployments.
- Tier III: Multiple Carrier Customers. Small Urban, Suburban, Rural Deployments.
- **Systems Supporting E911 Phase II in Commercial Service with GSM, TDMA, CDMA, 1xRTT, and AMPS.**
- **All Deployments to date at existing cell sites**
 - **97% of Deployments Use Only the Existing Cell Site Antennas.****No supplemental sites.**

Deployment Examples

- Large Urban: **Los Angeles, Chicago, Houston, San Francisco, Miami**
- Smaller Urban: **Cincinnati, Richmond, Evansville, Norfolk**
- Suburban, Town: **Alexandria, VA; Martinsville, Plano**
- Rural: **Alexandria, TN; VT; Mankato, MN; Gaston, NC; Lincoln County, WV; Kittcom, WA**

Deploying and Operating Geometrix

- Compact **measuring unit** installed at cell sites in coverage area. Connects to site receive antennas.
 - Single unit at cell site supports all cellular and PCS technologies in use at the site.
 - Measures 911 caller radio signal. Sends signal arrival time measurement to:
- **Control unit** installed at carrier switch site.
 - Controls the Geometrix system
 - Receives measurements from measuring units, computes locations, transmits locations to safety agencies.

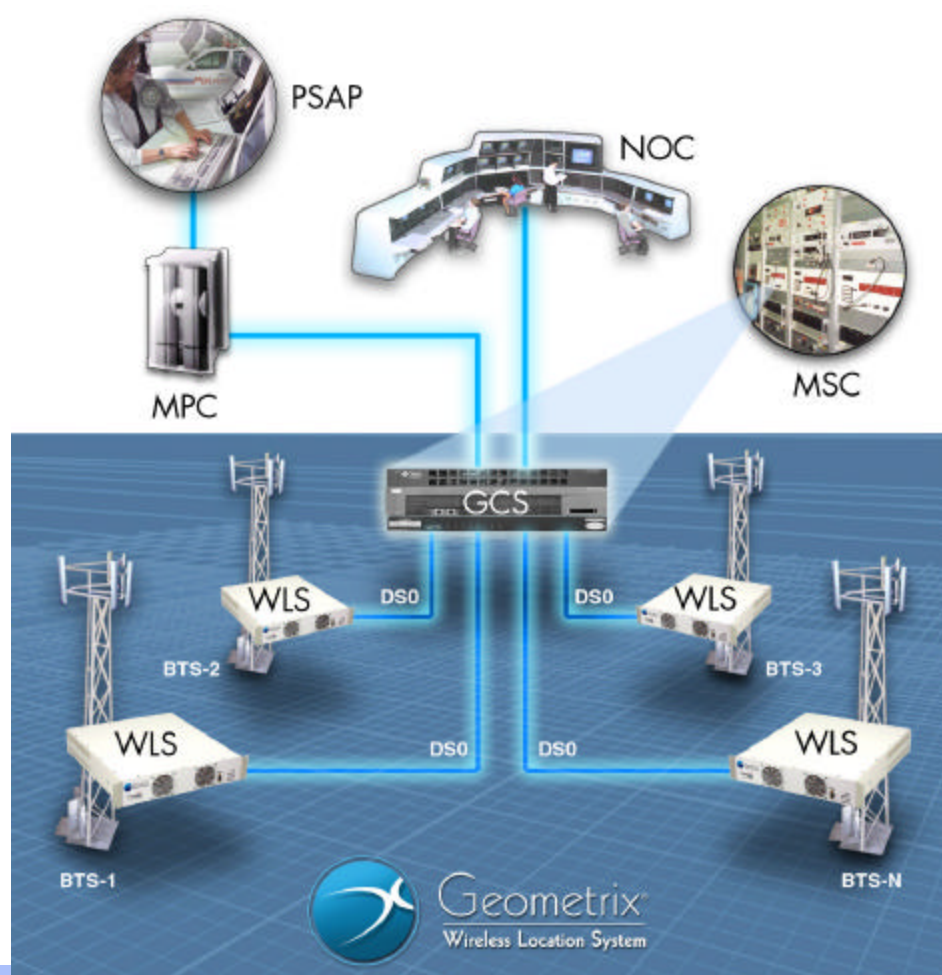


Time Difference of Arrival (TDOA) (Fundamental Geometrix Technology)

- Signal Arrival Time Measured at Multiple Sites
- Geometrix “More Sensitive” than Cellular Equipment --- Can Frequently “See” Signal at More Sites than Network
- Arrival Time Differences Used to Compute Caller Position
- No Handset Changes



Geometrix System Architecture



Geometrix Summary

- Network-Based Location System Compatible with All Cellular and PCS Handsets in U.S.
- Deployed to More Than 10,000 Cellular and PCS Sites
 - More than 10,000 TDMA Base Stations
 - More Than 9,800 GSM Base Stations
 - More Than 700 CDMA Base Stations
- E911 Phase II-Compliant
- In Commercial Service:
 - Tier I, II, and III Carriers
 - Rural, Urban, Suburban
 - GSM, CDMA, TDMA, 1xRTT, AMPS
- Single System Supports Multiple Network Technologies